Association of COVID-19 Vaccination Status With Nirmatrelvir/Ritonavir Utilization in Medicare Beneficiaries: A Retrospective Cohort Analysis

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BACKGROUND

- Nirmatrelvir/ritonavir is the first-line outpatient treatment for COVID-19 in individuals at high-risk for progression to severe disease.[1]
- During the study period, COVID-19 vaccination was recommended for everyone ages 6 months and older.[2]
- Now COVID-19 vaccination is based on shared decision making, with emphasis on those at increased risk for severe COVID-19.[3]
- COVID-19 vaccination has been shown to be cost-effective when accounting for medical costs.[4]
- The effect of COVID-19 vaccination on nirmatrelvir/ritonavir use and payer financial impact is largely unknown.

OBJECTIVES

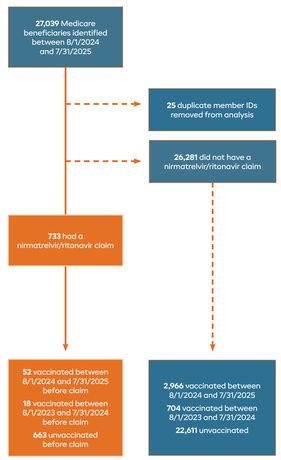
- Determine the utilization of nirmatrelvir/ritonavir among Medicare beneficiaries, stratified by COVID-19 vaccination status.
  - Compare nirmatrelvir/ritonavir utilization rates between vaccination groups.
  - Evaluate utilization rates between various high-risk groups.
  - Estimate the financial impact of COVID-19 vaccination on healthcare costs.

METHODS

DESIGN

- This was a retrospective cohort study which analyzed pharmacy and medical claims data to assess utilization of nirmatrelvir/ritonavir among a Medicare plan (n=27,039).
- This study identified three groups:
  - **Vaccinated 2025:** members vaccinated between 8/1/2024 and 7/31/2025
  - **Vaccinated 2024:** members vaccinated between 8/1/2023 and 7/31/2024
  - **Unvaccinated:** no vaccination between 8/1/2023 and 7/31/2025
- For nirmatrelvir/ritonavir utilizers, vaccination status at date of dispensing was used.

FIGURE 1: STUDY TIMELINE



STUDY POPULATION

- See Table 1.

OUTCOMES

- **Primary:** Nirmatrelvir/ritonavir utilization rates in the 2025 season compared between vaccination statuses
- **Secondary:** Utilization among various high-risk conditions, financial modeling of the impact on healthcare costs

STATISTICAL ANALYSIS

- Primary and secondary outcomes were determined using adjusted logistic regression.
- Financial modeling was derived from descriptive statistics, including demographic and financial characteristics.

RESULTS

TABLE 1: BASELINE CHARACTERISTICS OF STUDY POPULATION

	Vaccinated 2025 (n=3018)	Vaccinated 2024 (n=722)	Unvaccinated (n=23274)
Gender			
Female, n (%)	1562 (52%)	376 (52%)	12550 (54%)
Male, n (%)	1456 (48%)	346 (48%)	10724 (46%)
Age			
<65, n (%)	315 (10%)	39 (5%)	1169 (5%)
65 - 74, n (%)	1889 (63%)	477 (66%)	16867 (72%)
75 - 84, n (%)	676 (22%)	173 (24%)	4351 (19%)
≥85, n (%)	138 (5%)	33 (5%)	887 (4%)
Nirmatrelvir/Ritonavir Utilization, n (%)	52 (1.72%)	18 (2.49%)	663 (2.85%)
Comorbidities			
Metabolic or Cardiovascular, n (%)	2481 (82%)	594 (82%)	15440 (66%)
Chronic Respiratory, n (%)	812 (27%)	199 (28%)	4517 (19%)
Immunocompromised, n (%)	622 (21%)	176 (24%)	4105 (18%)
Neurologic or Genetic, n (%)	443 (15%)	125 (17%)	2423 (10%)
Other Risk Factors, n (%)	433 (14%)	109 (15%)	2752 (12%)
Kidney or Liver, n (%)	146 (5%)	50 (7%)	883 (4%)

FIGURE 2: ADJUSTED ODDS RATIO (aOR) OF NIRMATRELVIR/RITONAVIR UTILIZATION IN VACCINATED 2025 VS. UNVACCINATED

aOR = 0.26

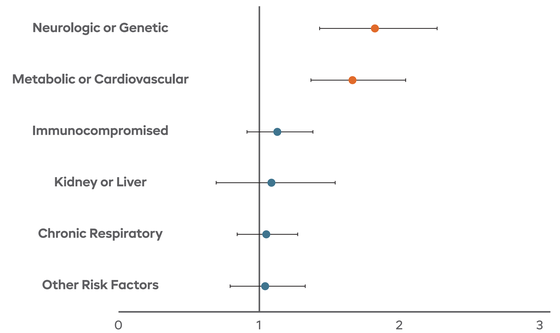
(95% CI: 0.06 - 0.55, p = 0.02)

TABLE 2: ABSOLUTE RISK REDUCTION (ARR) OF COMORBIDITIES OF UNVACCINATED COMPARED TO VACCINATED STATUSES

	Vaccinated 2025 (95% CI)	Vaccinated 2024 (95% CI)
Metabolic or Cardiovascular	**16.58% (5.34 to 27.81)***	7.53% (-9.59 to 24.65)
Neurologic or Genetic	11.84% (-4.21 to 27.88)	8.98% (-9.43 to 27.39)
Chronic Respiratory	5.37% (-10.75 to 21.49)	2.24% (-19.32 to 14.83)

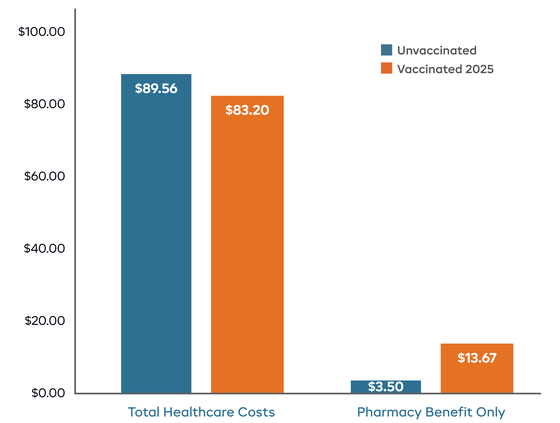
*Indicates statistical significance

FIGURE 3: ODDS RATIO OF COMORBIDITY PRESENCE IN VACCINATED VS. UNVACCINATED NIRMATRELVIR/RITONAVIR UTILIZERS



In patients who utilized nirmatrelvir/ritonavir, those who were vaccinated were more likely to have neurologic/genetic or metabolic/cardiovascular comorbidities than those who were unvaccinated.

FIGURE 4: PER UTILIZER PER MONTH (PUPM) COSTS BY VACCINATION STATUS



LIMITATIONS

- Findings may not be generalizable across all lines of business.
- This analysis is observational; causation cannot be inferred.

CONCLUSIONS

- COVID-19 vaccination is associated with reduced utilization of nirmatrelvir/ritonavir in Medicare beneficiaries.
- High-risk comorbidities may be more prevalent in vaccinated nirmatrelvir/ritonavir utilizers.
- COVID-19 vaccination may increase pharmacy costs for payers, but it remains cost-effective when considering total healthcare expenditures.

DISCLOSURE

This research was conducted by Navitus Health Solutions, Madison, WI without external funding.

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